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ABSTRACT

For a competency-based system of teacher certification to be feasible and fair, a valid and reliable set of measurement procedures must exist. There are four questions which must be answered before competency-based teacher certification can be validly implemented. The first question is, Should teacher or pupil behavior be used as evidence of teacher competence? Teacher behavior rather than pupil behavior is a more appropriate basis on which to judge teacher competence. The second question is, On what basis should specific behavioral indicators of competence be selected for observation? It is intellectually unjustifiable at this time to establish a particular set of behavior indicators of teacher competence as certification criteria. Question 3 is, Under what conditions should teacher behavior be observed in order to assess competence? Teacher behavior must be assessed in several contexts and over time if the assessments are to be generalizable. The final question asks, what kinds of measures of teacher behavior should be used to assess competence? Observation systems need to be identified and developed which are characterized by strong reliability and validity and by enough scope to reflect the range and complexity of teacher-student interaction. The movement in the direction of competency-based teacher certification should proceed only to the extent that our knowledge and technology will adequately support it. (RC)

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Measurement Issues and Competency-Based Teacher Certification

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For a competency-based system of teacher certification to be feasible and fair, a valid and reliable set of measurement procedures must exist. I will identify a set of questions which must be answered before competency-based teacher certification can be validly implemented. I will also try to outline some answers to those questions, or at least identify what kinds of answers are needed. Since this presentation is focused on basic issues related to measurement of teacher competence, I will not address many other questions of equal importance. The questions I will address are the following: (1) Should teacher or pupil behavior be used as evidence of teacher competence? (2) On what basis should specific behavioral indicators of competence be selected for observation? (3) Under what conditions should teacher behavior be observed in order to assess competence? and (4) What kinds of measures of teacher behavior should be used to assess competence?

First, should teacher or pupil behavior be used as evidence of teacher competence? Unfortunately, it is not obviously true that a teacher is competent if he or she can bring about gains in pupil learning . Similarly, a lack of learning gains does not necessarily indicate incompetence. A strong alternative explanation for pupil learning, or

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the lack of it, is that factors external to the classroom are more powerful than the teacher in positive or negative ways. Unless non-teaching learning effects are eliminated from evaluations of teacher competence, assessments in terms of pupil performance are not interpretable.

It can not be assumed for certification purposes that the classroom is a closed system. Students come to a teacher with some knowledge about a subject. The teacher's effect is what they learn beyond what they already know. It is possible to assess students' prior knowledge but it would have to be done on a class by class basis. Even if standardized instructional units were used, the development and use of reliable and valid instruments in the wide variety of grade level and subject matter specialties would be an immense task. Given the necessary instruments and the means to use them, a teacher's competence would have to be assessed over time. If time sampling were not used, then it would be impossible to account for the effects of random variations in student behavior, teaching conditions, and teacher behavior (Smith, 1971). Without time sampling, confidence in the reliability of an assessment would drop drastically. I do not think the use of pupil learning gains as evidence of teacher competence is feasible due to the great expense in time and money that would be required of the state.

Teacher behavior is a more appropriate basis on which to judge teacher competence. It is comparable to accountability criteria used in other professions such as medicine. A beginning medical doctor is not licensed in terms of cures achieved but in terms of his or her knowledge and observable skillfulness in the light of medical science and current professional practice. Secondly, teacher education institutions focus their efforts on the prospective teachers' knowledge and skills. Neither

the teacher trainees nor the training institutions are in a position to be responsible for changing pupil behavior in elementary and secondary schools. They can not be legitimately held accountable for school effectiveness. Since desirable changes in teacher behavior are claimed for training programs, that is the point at which both the beginning teachers and the teacher education institutions should be evaluated (Turner, 1972). All this assumes that an adequate system of assessing teacher behavior can be constructed.

If we accept the proposition that teacher behavior is the appropriate evidence to use in evaluating teacher competence, we are ready for the second question. On what basis should specific behavioral indicators of competence be selected for observation? Unfortunately, there is not a lot of dependable knowledge about what teaching behaviors are clearly effective for particular learning outcomes. Rosenshine and Furst's summary of teacher performance research is frequently used to cite effective teacher behaviors. In their summary, variables such as clarity, variability, enthusiasm, task-orientation, and seven others are identified as very promising in terms of affecting pupil learning (Rosenshine and Furst, 1971). Heath and Nielson analyzed forty-two of the studies cited by Rosenshine and Furst (Heath and Nielson, 1973). They found widespread problems including inadequate operational definitions, weak research designs, and basic statistical errors. The doubt cast by Heath and Nielson on the validity of those studies emphasizes the tentative nature of our knowledge about effective teacher performance.

The point of this argument is not that we do not know anything on which to base selections of important teacher behaviors. We just do not know nearly as much as we need to know in order to establish a

definitive set of skills which define teacher competence. Nevertheless, we do make decisions about what we ought to do as teachers and we will continue to do so. Logical arguments for the necessity of certain teacher behaviors can be made. We must admit that the empirical evidence to support the sufficiency of those teacher behaviors to bring about significant gains in pupil learning is generally lacking. Consequently, efforts to identify a set (or sets) of necessary teaching skills need to be made.

Codifying any given set of teaching skills in a set of certification criteria is clearly going beyond our knowledge base at this time. Even such a strong advocate of competency-based teacher education as Benjamin Rosner estimates that the validity of CBTE will not be established until the mid-1980's (Rosner and Kay, 1974). Under these conditions, I do not believe that it is wise to close off alternatives in teacher education by means of certification requirements. In summary, intensive and extensive analytical research is needed to frame sets of teaching skills in ways that can be translated into comprehensive teacher training and research efforts. This work is still in its early stages.

Let us assume that enough agreement can be reached on a set (or sets) of necessary teaching skills so that coherent teacher training programs can be developed and implemented. An absolute necessity for competency-based certification is the acquisition of reliable and valid measures of teacher behavior. This brings us to the third question: Under what conditions should teacher behavior be observed in order to assess competence? Since we are focusing on teacher behavior, we can observe either a teacher's performance in a real or simulated teaching situation or we can observe a teacher's response to an examination regarding his or her understanding of teaching.

Turner describes six contexts for evaluating teacher competence. Two of those are related to pupil performance and have already been eliminated from this discussion. The other four are still candidates for consideration in a competency-based system of certification. I will outline each of those situations.

By far the most inexpensive kind of teacher behavior to observe is performance on a written or oral examination. Various levels of understanding regarding concepts, principles, and behavior relevant to teaching can be assessed (Turner, 1972). This kind of teacher assessment has value for certification only to the extent that it can be used to reliably predict future teaching performance. As a predictor of performance, little confidence can be placed in this kind of assessment. It is common knowledge that people frequently contradict in action what they say they should do. The reason for this inconsistency is the fact that teaching is a social phenomenon not just a psychological experience. Teachers and students react to each other under conditions in which stimuli and responses are not well-controlled (Quirk, 1974). Verbal examinations can not create conditions of social interaction. Such examinations can indicate how well a teacher can think about teaching. How well a teacher can teach is another question. Written or oral examinations about teaching are wholly insufficient for assessing teacher competence.

Another context for obtaining evidence about teaching competence is a simulated teaching situation created by means of film, videotape, or recordings. In a simulated setting, teachers act out their responses to classroom situations. A sophisticated simulation could create a series of situations based on a teacher's decisions made earlier in the simulation experience. While more realistic than verbal examinations about teaching,

it is still a highly simplified set of conditions. Simulated teaching contexts can be useful in teacher training, but little confidence can be placed in assessments made in them due to a lack of predictive validity (Turner, 1972).

A third setting could be established in terms of a typical micro-teaching setting. Utilizing only a few students for a short time-period allows only modest confidence in an assessment of teacher performance. The major value of evidence collected in this setting is to determine whether a teacher possesses particular skills and whether he or she can use them under well-defined teaching conditions (Turner, 1972).

The fourth evaluation context, which is optimum for assessing teacher competence, is observation of teacher behavior in an on-going school classroom. Confidence in the assessment of a teacher's teaching skillfulness will be stronger under these conditions than the other three. Given the difficulties of using pupil performance results, classroom observations allow assessments with the maximum degree of confidence that is feasible to attain. This degree of confidence should be adequate for the provisional certification of teachers (Turner, 1972). The classroom context also provides evidence of the effectiveness of the training program in which the teacher participated.

If we accept that evaluating teacher competence in school classrooms is necessary for certification purposes, we must decide what further conditions must be met before teacher behavior can be adequately assessed. For an assessment to be meaningful and useful for a purpose as important as certification, we must be confident that a teacher's performance of a skill or set of skills will be reasonably consistent over time and in a variety of teaching contexts. If teacher behavior is strongly influenced by varying social and temporal conditions, then no

generalizable evaluation of a teacher's competence can be made on the basis of an assessment in only one context

The following questions need to be researched if a competency-based system of teacher certification is to utilize a single classroom context for the assessment of a given teacher. Will variations in the teaching environment elicit significantly different behavior from any given teacher (Tittle, 1973)? Context factors such as urban and rural settings, open and traditional classroom organizations, homogeneous and heterogeneous ability groups, and high, middle, low, and mixed student social statuses are possible determinants of teacher behavior. If teacher behavior does vary significantly across settings, which seems likely, how can this be accounted for in the evaluation of teacher competence? Insufficient knowledge exists to make adequate judgments about the effects of such context variables on a particular teacher's performance. Generalizing from a single evaluation context for each teacher clearly requires assumptions about the consistency of teacher behavior which are currently unsupported by evidence. In spite of the expense, sampling a teacher's behavior in a variety of settings over time appears to be a necessity in order to avoid making unwarranted assumptions and invalid assessments.

The problems associated with establishing an adequate context for evaluating teacher competence are obviously complex. Let us assume for the moment that those problems can be resolved. The final question to be addressed in this presentation is: What kinds of measures of teacher behavior should be used to assess competence?

Many of the observation instruments currently available are too global and ambiguous. Reliability and validity are low due in part to

inadequate definitions of the observational categories. Other available instruments are too specific in their focus and do not give an adequately comprehensive measure of teacher performance. Reliability and validity are much better, however (Kay, 1973). Currently available and newly developed instruments should be evaluated in terms of the following criteria. Do the instruments permit classification of teacher behaviors in the cognitive and affective domains (Turner, 1972)? Do the observation schedules reflect scales which have enough scope to assess the intellectual and interpersonal environment students experience in the classroom (Turner, 1972)? Are the instruments designed in terms of clearly stated assumptions regarding a particular social context of teaching? Are the data collection and scoring procedures adequately reliable (Kay, 1973)? Has the validity of the measure been adequately established?

After examining some of the basic issues related to the measurement of teacher competence and the implementation of competency-based teacher certification, I have come to the following conclusions. Teacher behavior rather than pupil behavior is the appropriate kind of evidence to use in evaluating teacher performance. It is intellectually unjustifiable to establish a particular set of behavioral indicators of teacher competence as certification criteria at this time. Teacher behavior must be assessed in several contexts and over time if the assessments are to be generalizable. Observation systems need to be identified and developed which are characterized by strong reliability and validity and by enough scope to reflect the range and complexity of teacher-student interaction. I hope that competency-based teacher certification will become a reality. However, I believe movement in that direction should proceed only to the extent that our knowledge and technology will adequately support it.

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